VSEPR- Information Chem 111-Name:

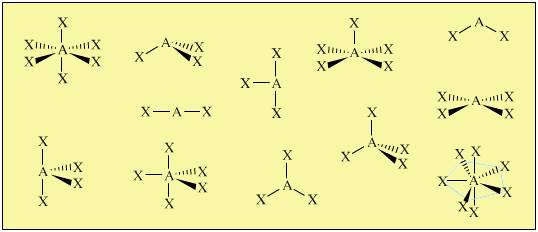
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| General Formula | Example of a molecular formula | Lewis electron dot diagram | Number of lone pairs  Around middle atom | Number of bonding pairs  Around middle atom | Shape diagram  (structural diagram) | Name of Shape | Polar/Non-polar |
| AX |  |  |  |  |  | Linear | Polar |
| AX |  |  |  |  |  | Linear | Non-polar |
| AX2 |  |  | 0 | 2 |  | Linear | Polar |
| AX2 |  |  | 0 | 2 | http://www.chem.purdue.edu/gchelp/vsepr/becl2thk.gif | Linear | Non-polar |
| AX3 |  |  | 0 | 3 |  | Trigonal Planar | Polar |
| AX3 |  |  | 0 | 3 |  |  | Non-polar |
| AX4 |  |  |  |  |  | Tetrahedral | Polar |
| AX4 |  |  | 0 | 4 |  |  | Non-Polar |
| AX3  (1 lone pair) |  |  | 1 | 3 |  | Trigonal pyramid | Polar |
| AX2  (2 lone pairs) |  |  | 2 | 2 |  | v-shaped  or bent | Polar |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| General Formula | Example of a molecular formula | Lewis electron dot diagram | Number of lone pairs  Around middle atom | Number of bonding pairs  Around middle atom | Shape diagram  (structural diagram) | Name of Shape | Polar/Non-polar |
| AX5 |  |  |  |  | http://www.chem.purdue.edu/gchelp/vsepr/pf5thk.gif | Trigonal  Bipyramidal | Non-polar |
| AX5 |  |  |  |  |  | Trigonal Bipyramidal | Polar |
| AX4  (1 lone pair) |  |  | 1 | 4 |  | Trigonal Pyramidal | Polar |
| AX3  (2 lone pairs) |  |  | 2 | 3 | http://www.chem.purdue.edu/gchelp/vsepr/icl3thk.gif | Teeter-totter  See-saw | Polar |
| AX3  (2 lone pairs) |  |  | 2 | 3 |  | T-shaped | Polar |
| AX3  (2 lone pairs) |  |  | 2 | 3 |  | Trigonal planar | Polar |
| AX6 |  |  | 0 | 6 |  | Octahedral | Non-polar |
| AX6 |  |  | 0 | 6 |  | Octahedral | Polar |
| AX5  (1 lone pair) |  |  | 1 | 5 |  | Square pyramid | Polar |
| AX4  (2 lone pairs) |  |  | 2 | 4 |  | Square planar | Non-polar |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| General Formula | Example(s) of a molecular formula | Lewis electron dot diagram | Number of lone pairs  Around middle atom | Number of bonding pairs  Around middle atom | Shape diagram  (structural diagram) | Name of Shape | Polar/Non-polar |
| AX4  (2 lone pairs) |  |  | 2 | 4 | http://www.chem.purdue.edu/gchelp/vsepr/icl4thk.gif | Square Planar | Polar |
| AX2  (double bonds and one lone pair) |  |  |  |  | http://www.chem.purdue.edu/gchelp/vsepr/no2mthk.gif | Bent | Polar |

**The table below comes from the following site:** [**http://mc2.cchem.berkeley.edu/VSEPR**](http://mc2.cchem.berkeley.edu/VSEPR)

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The sketches above come from http://www.chemistry-drills.com/VSEPR.php